Eur J Vasc Endovasc Surg **23**, 562–563 (2002)
doi:10.1053/ejvs.2002.1660, available online at http://www.idealibrary.com on IDEAL®

CASE REPORT

The Occlusion of an Internal Iliac Aneurysm by the Trans-Catheter Injection of Thrombin

M. Yapanis*[1], A. Parnell[2] and B. Jones[1]

Departments of [1]Vascular Surgery and [2]Radiology, Good Hope Hospital, Rectory Road, Sutton Coldfield, Birmingham, U.K.

Key Words: Thrombin; Internal iliac aneurysm; Trans-catheter injection; Coil embolisation endovascular.

Introduction

Thrombin injection has been used extensively in the treatment of false aneurysms but rarely in the management of true aneurysms. We present a case of obliteration of an internal iliac aneurysm by the trans-catheter injection of thrombin.

Technique

An 84-year-old man presented with disabling left-sided intermittent claudication. An ultrasound scan revealed a 65 mm left internal iliac aneurysm and a 32 mm infrarenal aortic aneurysm. This was followed by a CT scan and angiography demonstrating, in addition, a severe left external iliac artery stenosis.

The internal iliac aneurysm was treated endovascularly, after he was assessed to be too unfit for open surgery. Access to the aneurysm was gained via the ipsilateral groin after the external iliac stenosis had been dilated with a 6 mm balloon catheter (Cordis®, South Ascot, U.K.) via the contralateral groin. An attempt was made to occlude the aneurysm by embolisation and then by thrombosis. Using an MPA catheter (Wilson Cook®, Hertfordshire, U.K.) five 3 cm vein of Galen coils and then four detachable 20 cm guidewires (Boston Scientific, St. Albans, U.K.) were introduced. Subsequently, 2500 units of thrombin were injected using the coils as a nidus for thrombosis. A follow-up CT scan demonstrated only peripheral aneurysm thrombosis. Later, further embolisation was attempted using ten coils between 12 and 20 mm (Wilson Cook®, Hertfordshire, U.K.) (Fig. 1). These alone failed to occlude the aneurysm. Therefore, thrombin was injected again. On this occasion, flow was interrupted for 5 min using a 10 mm angioplasty balloon (Cordis®, South Ascott, U.K.) inflated in the neck of the aneurysm, while 500 units of thrombin were introduced. This achieved complete obliteration of the aneurysm confirmed by a CT scan 6 weeks later (Fig. 2). There were no ischaemic sequelae from the procedures.

Fig. 1. Angiogram illustrating aneurysm after second coil embolisation, but before second thrombin injection.

*Please address all correspondence to: M. Yapanis, Regional Vascular Unit, St. Mary's Hospital, Praed Street, London W2 INY, U.K.

1078–5884/02/060562 + 02 $35.00/0

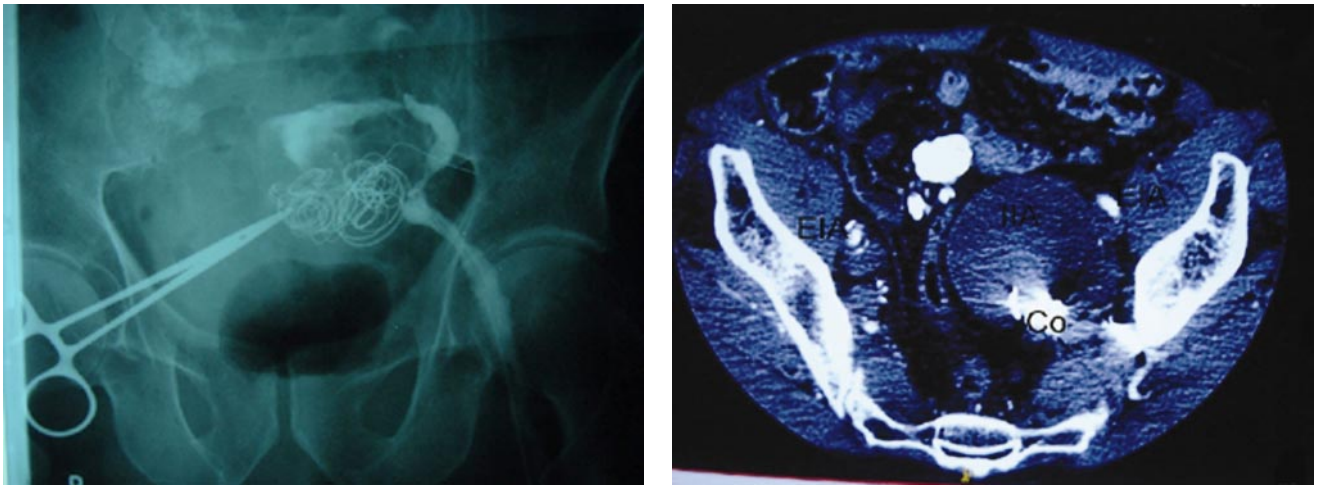

Fig. 2. CT scan showing contrast in external iliac arteries (EIA), but not in occluded internal iliac aneurysm (IIA). Coils (Co).

Discussion

Patients with internal iliac aneurysms frequently have significant comorbidity. Endovascular approaches have been developed to occlude aneurysms in such patients, normally by coil embolisation.[1] Thrombin is used extensively in the treatment of femoral false aneurysms[2] but not true aneurysms. Recently, Owen reported the use of a percutaneously introduced tissue adhesive, containing thrombin, in the treatment of an internal iliac aneurysm.[3] Our approach differed, in that thrombin alone was used, and that it was introduced via a catheter. This avoided any theoretical risk of bowel injury. Although we utilised coils, these occupied only a small volume of the aneurysm and therefore, on their own, would not achieve complete occlusion. A much larger number, at considerable extra expense, would have been required to achieve complete thrombosis. Whether or not the coils, by forming a thrombogenic surface, were vital to the success of the thrombin is not clear. Uniquely, we achieved cessation of flow, by intra-arterial balloon occlusion in the neck of the aneurysm, which was clearly important for the smaller volume of thrombin to work.

In summary, the trans-catheter injection of thrombin, following intra-arterial balloon inflation to arrest blood flow, is a feasible and less expensive method for treating large internal iliac aneurysms, especially in patients unfit for surgery.

References

1 Mori M, Sakamoto I, Morikawa M *et al*. Transcatheter embolization of internal iliac aneurysms. *J Vasc Interv Radiol* 1999; **10**: 591–597.
2 Owen RJ, Haslem PJ, Elliott ST, Rose JD, Loose HW. Percutaneous ablation of peripheral pseudoaneurysms using thrombin: a simple and effective solution. *Cardiovasc Intervent Radiol* 2000; **23**: 441–446.
3 Owen RJ, Jackson R, Loose HW *et al*. Percutaneous ablation of internal iliac aneurysm using tissue adhesive. *Cardiovasc Intervent Radiol* 2000; **23**: 389–391.

Accepted 28 February 2002